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Parrott, R.D.A.

Cold blast charcoal pig iron made at Greenwood...

[Flushing, N.Y.]

[1921]

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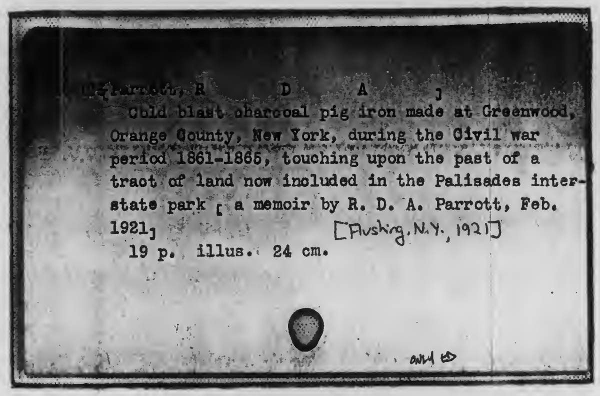

[Parrott, R D A]
Cold blast charcoal pig iron made at Greenwood, Orange County, New York, during the Civil war period 1861-1865, touching upon the past of a tract of land now included in the Palisades interstate park [a memoir by R. D. A. Parrott, Feb. 1921] [Flushing, N.Y., 1921]
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Box

Cold Blast Charcoal Pig Iron

Made at

Greenwood, Orange County, New York

During the

Civil War Period

1861-1865

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Box 103

Touching Upon the
PAST
of a Tract of Land Now Included in the
PALISADES
INTERSTATE PARK

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INTERSTATE PARK

A Memoir by R. D. A. Parrott
244 Sanford Avenue
Flushing, N. Y.

February, Nineteen Twenty-One

Gift of R. D. A. Parrott
2-16-21

CB Apr. 6, 1923.

TOWN meeting at all times has brought together citizens of Monroe who seldom met at any other time of the year. At one of these spring elections at Turner's in the seventies I chanced to meet the man who was foreman at the Greenwood furnace ten years before. He was in a reminiscent mood and told me of the practice of running the furnace on hot blast in preference to cold blast.

What might seem to the novice a trivial matter was at that time and place a veritable tryout of an important feature in iron smelting. Hot blast for furnaces was an invention of James Beaumont Neilson, of England, in 1828. In a biography of him it is written: "His theory was altogether at variance with the established practice, which was to supply air as cold as possible, the prevailing idea being that the coldness of the air in winter was the cause of the best iron being then produced. Acting on these views, the efforts of the ironmasters has always been directed to the cooling of the blast, and various expedients were devised for the purpose. Thus the regulator was painted white, as being the coolest color; the air was passed over cold water, and in some cases the air-pipes were even surrounded by ice, all with the object of keeping the blast cold."

The Greenwood furnace had been equipped for several years with the best ovens for heating the blast. The adoption of the improvement was quite general for it was found that a high temperature of blast lessened the burden of charcoal required to smelt the ores and also increased the product, though it might weaken it.

Among the advocates of cold blast were to be found the army and navy departments of the Government. Accordingly, to be certain that the iron furnished for guns should be made with cold blast an officer (Lieutenant Walker) of the navy was detailed to watch the operation of the Greenwood furnace. The compressed air could be kept out of the heating ovens by closing a valve in the blast-main and this contrivance put it in the power of the furnacemen to have some fun with Uncle Sam. Recalling what he had done the foreman said he used to run the furnace on hot blast by keeping the valve open until he saw the officer coming 'round the turn in the road to the cinder dump, when he would close the valve and run the furnace on cold blast!

The selection of Greenwood charcoal pig iron for the manufacture of guns by the West Point Foundry, at Cold Spring, N. Y., is traceable to its remarkable strength. A record of Government tests reads as follows: "Cast iron (Greenwood) at three successive meltings gave tenacities of 21,700 lbs.; 30,100 lbs.; 35,700 lbs. Tensile strength of the strongest piece of cast iron ever tested 45,975 lbs. This was a mixture of grades one, two and three of Greenwood iron and at the third fusion."

To get in this leading position in the manufacture of strong charcoal pig iron was no sudden accomplishment but, in fact, a gradual development extending over many years of experiment and investment, all the time disclosing efforts to improve the process of smelting ores and to turn out a quality of product that was not commonly attained. The man who was working out an achievement here was Robert P. Parrott.

He was born in Lee, Rockingham County, New Hampshire, in 1804; graduated at the U. S. Military Academy in 1824; "in the year 1834 he was detailed for ordnance duty, took part as a staff officer in the war against the Creek Indians and was commissioned captain in the ordnance corps in the year 1836, and was then stationed for active duty at the West Point Foundry at Cold Spring, N. Y." He soon resigned from the army to become superintendent of the cannon foundry. This foundry was then controlled and operated by Gouverneur Kemble. To supply his foundry with pig iron Mr. Kemble had become interested in mines and furnaces across the Hudson river and over the Highlands in Orange County. As early as 1823 he had leased the O'Neil mine in the town of Monroe and in 1832 he purchased it. He built the Woodbury furnace in 1830. Here he smelted ore from the O'Neil and Sterling mines. He ran the Greenwood furnace under lease in 1837 and soon became possessed of it, as well as of woodlands and mineral prospects. In 1838 his Greenwood furnace tract comprised seven separate parcels aggregating about 7000 acres. All this land, together with mineral rights and the Greenwood furnace, was conveyed by Mr. Kemble and his associates in the business to Robert P. Parrott in 1839.

Two years previous to Mr. Parrott's purchase of the furnace tract he had put his brother, Peter P. Parrott, in charge of the mining and manufacturing business at Greenwood. From this time forward these two men, without other partners, continued to develop the property. The first thing that aided them was the building of the New York and Erie Railroad through the Ramapo valley. It was completed to Greenwood in 1843. The supply of ties to the new road and the marketing of sawed timber made great inroads upon the virgin forests. The axman of those days has left only a few of the primeval trees. By following the outcrops of iron ore several new mines were made available. The promise of the mines was so encouraging in 1853 that an anthracite furnace, the Clove, was built. It has a story of its own to tell, wholly separate from that of the Greenwood furnace, which produced only charcoal iron. In the years '53 to '56 the timber dams at the furnace pond, cranberry meadow and Slaughter pond were supplanted by stone dams of much greater capacity. These dams are still doing duty in forming the beautiful reservoirs called Echo, Cranberry and Forest lakes.

In addition to the preparations for producing a strong pig iron at Greenwood, Robert Parrott was following the bent of his mind at Cold Spring, where he resided. So far in his career he has been in close contact with the ordnance that the Government had made use of. He had seen somewhat further than other engineers and was giving his attention to hooped guns long before the Civil War broke out. He had a gun finished when the time arrived. This he presented to the Government. The tests were satisfactory and orders for the gun were at once received which made a demand for the charcoal pig iron made at Greenwood and continued to do so for the duration of the war.

A verbal restoration of the scene 'round about the furnace plant when prosperity came in 1861 might here be given for there is little remaining now to indicate the activities of that earlier period. The population dependent on the business was about fifteen hundred. Houses of the furnacemen, miners and woodchoppers were scattered through the mountains. At the furnace pond the houses were numerous enough to make quite a village. Traveling eastward from the Ramapo valley up the public road along the ravine in which the brook flows and after passing the Greenwood furnace, which looked formidable because of the enormous charcoal sheds that crowded near it, one came upon more sheds on the right over near the pond; straight ahead on the right of the public road was the McKelvey house and further along on the opposite side was the store, housing the post office and carrying everything from calico to pork; then came several dwellings on both sides of the road and finally the school house on a hill at the left. The burden of the furnace was made up of ores mined on the property; those mines contributing at different times to the gun metal were the Bradley, Greenwood, Surebridge, Pine Swamp, O'Neil and Clove. The ores were not hauled directly to the furnace but to a kiln a half a mile above it in which they were roasted to drive off the sulphur. After this they were put through a stamping-mill which reduced the size of the lumps to that of a pigeon's egg. The brook from the upper ponds was dammed at this point, giving power to run the stamping-mill and also a sawmill. The

Picture Showing Furnace and The Greenwoods, 1871

wheel used for this power was of Scotch design, the first turbine wheel to be put in place in this country. An important branch of the business was the cutting annually of ten thousand cords of wood and turning it into charcoal. The hauling of this coal from the pits and storing it in sheds for use during the winter required a great deal of labor. Numerous baskets were needed and these were made at their homes by the mountaineers or so-called "bocky-makers." There were no narrow guage railways or wire rope tramways to handle materials for the furnace. Transportation of these meant the maintenance of numerous teams of horses and mules and required that constant attention be given to the roads. In spite of this the roads were noticeably poor and not conducive to pleasure driving.

The photograph presented here is of an oil painting by Waters of the landscape just before the village is reached. The artist's view is in the opposite direction to the one everybody is accustomed to. To recognize the scene one has to betake himself quite a distance over the pond and then look back whence he came. In the foreground is a part of the furnace pond; a wooden bridge shows where the dam is; the shore on the left is thickly covered with hemlocks. Exactly in the center of the picture the stack of the furnace and the smoke from it may be seen. Upon the terrace at the right is the residence of Peter P. Parrott, known as The Greenwoods.

The community, of course, had its military company. The men were in uniforms of blue flannel and their guns were of wood. By drilling and marching they got a notoriety that went over the top of the

INTENTIONAL SECOND EXPOSURE

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The community, of course, had its military company. The men were in uniforms of blue flannel and their guns were of wood. By drilling and marching they got a notoriety that went over the top of the mountains to West Point. One evening Captain Alfred Mordecai appeared on a recruiting tour and addressed the raw soldiers from the piazza of The Greenwoods, exhorting them to enlist in the service of their country. His speech was loudly cheered and he continued: "I can tell by your voices where your hearts lie." This appreciation aroused "pep" in the men and one-third of the company heeded his call and went off to the war. So, it was not long before Greenwood had tears and shed them at the cemetery and it also had a returned soldier carrying an empty sleeve.

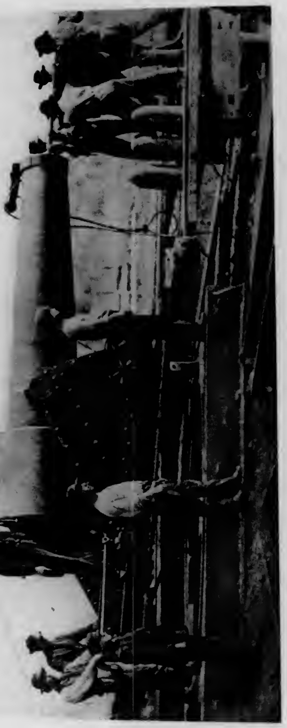
The free use of the land for grazing cattle; the opportunity for securing free wood for domestic use as well as for making baskets, spoons, ladles and trays; the unrestricted use of the woods and ponds for shooting and fishing, all tended to make the mountaineer indifferent to discipline. His labor was irregular owing to his independence. The village was "dry" by regulation but near-by centers were "wet" without regulation. The consequence was that walking, to and fro, was a compelling pastime and personal liberty was in full swing. The new freedom of the present day pressed but lightly then, if at all!

A visitor would have pointed out features of the place that the inhabitants overlooked as being commonplace. He would have said that much of the charcoal escaped being fed into the furnace for it was being wafted about in clouds of dust, settling on everything that couldn't get out of the way — including the face of the visitor. By nature the local color was green, but, artificially, black was a good second and more generally worn. The visitor would have asked "Why this noise, in an otherwise perfectly good village?" He would have been told that it was the stamping-mill and, though loud, was thought to be harmless by the natives.

Speaking of noise, when the guns increased in calibre to the 200-pounders the firing tests at Cold Spring, twenty miles away, were distinctly heard, reverberating over the Hudson Highlands, in this village. The casual mention of this foundry incident does not at all convey the satisfaction that was felt by those connected with the furnace. It confirmed in their minds the thought that they were personally engaged in a patriotic work. Why they should naturally have pride in their job is difficult to illustrate in a charcoal sketch but thanks to the course of the war I will mention a good reason shortly from a more distant gun test.

The occupation was not an indoor one for the owners. Mines and coaling jobs had to be visited by day and the furnace at night. Midnight casting was something worth staying up for. As often as circumstances would permit, Robert would come across the mountains from Fort Montgomery, calling at a mine on the way in hope of finding Peter there. Although they often had interviews, they also exchanged letters with great frequency. I shall presently quote from this correspondence to show that the scope of the worry of these industrious brothers was not bounded by the encircling sky line at the Greenwood furnace. The undertaking before them was the putting down of the Rebellion and they followed the first years of indifferent success of the armies of the North with great anxiety.

Since the above summary of real estate held in



Loading a 300 Pound Parrott Gun for a Test at West Point Foundry, Cold Spring, N. Y.

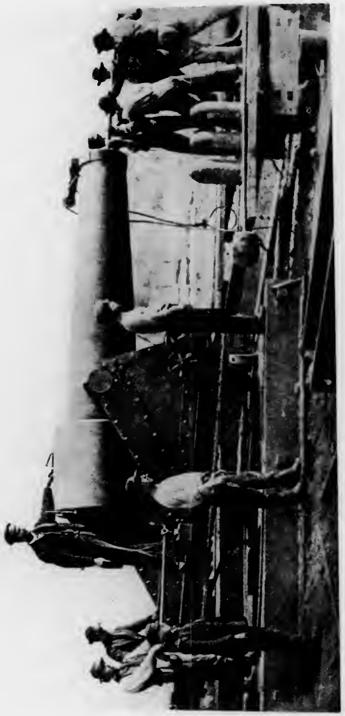
1838 there had been added thirteen parcels, making the total acreage controlled in 1864 about 8500, made up of twenty parcels. The last purchases included the Forshee, Mombasha, Bull, Clove and Warwick mines.

I have said that an achievement was being worked out by Mr. Parrott. To produce a strong iron at Greenwood was a task that needed attention and patience but it was a means to an end. His work at Cold Spring called for the greater part of his efforts. His own story is plainly told in these few lines copied from a pamphlet dated February 25, 1862: "I was led to the construction of my gun wholly by my own experiments and conclusions. It is a hooped gun of the simplest kind, composed of one piece of cast iron and one of wrought iron. It has no taper, no screw, no successive layers of hoops. It is, however, no hasty expedient; but is devised upon the results of years of experience and practical trials, and has a definite and consistent plan."

He makes no claim for originality in making a hooped gun. He could not well do this for guns had been hooped, or banded, for a century, a most obvious way of strengthening the barrel of a gun. Neither was his rifling of the guns original. Every maker of guns was at that time experimenting with grooves in the bore. His system, however, was new, and the improvement was carried to perfection by his initiative, at least to the satisfaction of the U. S. Patent Office.

Experiments with the new gun involved also a study of projectiles because those provided up to that time failed to take the rifle grooves and thus virtually

INTENTIONAL SECOND EXPOSURE



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Experiments with the new gun involved also a study of projectiles because those provided up to that time failed to take the rifle grooves and thus virtually defeated the purpose of rifling the piece, which was to give the elongated shot a rotary motion to prevent its tumbling. To make the projectile engage the rifling he devised a ring of brass so cast upon its base as to be part of it but still offering soft metal that the gases, created by the explosion of the powder in the cartridge, would force into the grooves. The expansion principle here utilized superseded all other devices both for small and large guns. More important than priority of invention for these improvements was the delivery of the goods, so to speak, for in due course the guns were at the front and being heard from.

The following quotations from Mr. Parrott's letters to his brother and from other sources are illuminating of an important period of the war. They indicate a hurry by the Government to prepare for an attack on Fort Sumter and reflect the result of the attack better than any descripion written 57 years after can do.

Cold Spring, April 23, 1863.

"My interest in everything at Greenwood is very great but under all the circumstances in view of the great extent and importance of the operations here I find it difficult to leave. We continue very busy and likely to use all the iron you can make."

April 25, 1863.

"Guns are ordered by the fifties and all my efforts required to keep up the supply."

May 2, 1863.

"I am very anxious about the great increase in demand for our work and it requires no little thought to provide for it. Unless some material change comes

I must look for more extensive preparations of some kind, otherwise matters are getting on well. I hope very soon to be over."

May 4, 1863.

"We are all expecting news from Hooker's army today; I trust we have good news for once from that quarter."

May 26, 1863.

"I hope we shall have better results in the Southwest than near Washington. Our iron seems to work hard but though very strong."

June 5, 1863.

"I have no let up in the calls for guns and projectiles. In fact, it is increasing daily."

The New York Times of August 22, 1863.

Editorial comment on the bombardment of Fort Sumter by Gillmore's Parrotts' — "Refugees who have reached Norfolk, Va., from Richmond state that the Rebel Government are much frightened in anticipation of the fall of Charleston. They consider its capture as fixing the doom of the Confederacy."

General Gillmore's report on the same.

"The breaching batteries established in this locality were at a mean distance of 4300 yards from Fort Sumter, and comprised one 10-inch Parrott rifle (300-pounder), two 8-inch Parrott rifles (200-pounders), and four 100-pounder Parrott rifles. All these pieces took an effective part in the first bombardment of Fort Sumter from the 17th to the 23d of August, although some of them did not open until the second, and others not until the third day."

In his "Defense of Charleston Harbor," Major

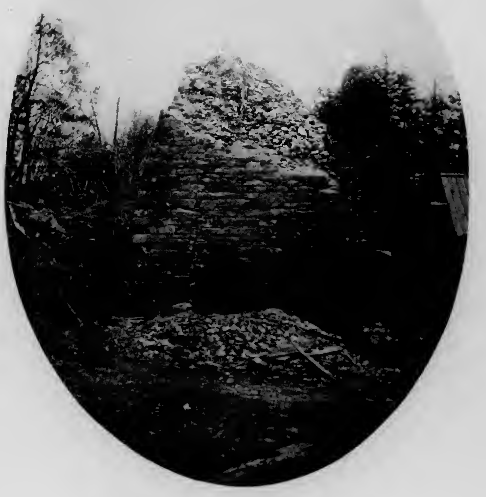
John Johnson, C.S.A., speaking of the fifth day of this bombardment, says Brigadier-General Turner, chief of artillery, reports to Major-General Gillmore: "The precision of the fire of the Parrott rifles was remarkable, probably excelling any artillery ever before brought on the field in siege operations." "And in this testimony all the Confederate authorities fully concur."

Cold Spring, Aug. 28, 1863.

"I am over head and ears in business and demand for guns, etc."

The duration of the war was much longer than was expected but it is not necessary to follow the performances of the gun after the first bombardment of Fort Sumter, where success for the large calibres was established. The system of ordnance as completed by Mr. Parrott gave the Government a weapon effective at longer range than any gun the South could make, or buy, and the execution done by it has long been a matter of history. The quotations cannot do otherwise than suggest why the men at the furnace should have had pride in their job. The Greenwood furnace at that time was clearly linked with the operations of the war, even to the doom of the Confederacy. What Greenwood did was to avail itself of the resources in wood and ores of the Hudson Highlands in the achievement of a national benefactor.

The Government throughout these four years was hampered by partizan complaints of the high cost of the war and the ill success of the operations during the first two years did not allay anxiety. The lack of public funds was so forcibly impressed upon Mr. Parrott that when he was importuned by his friends to



GREENWOOD FURNACE IN 1887.

A cast iron plate in masonry over tuyere arch had upon it the words "Rebuilt 1813."

Tradition has it that an ox was roasted in quarters when this stack was blown in.

INTENTIONAL SECOND EXPOSURE

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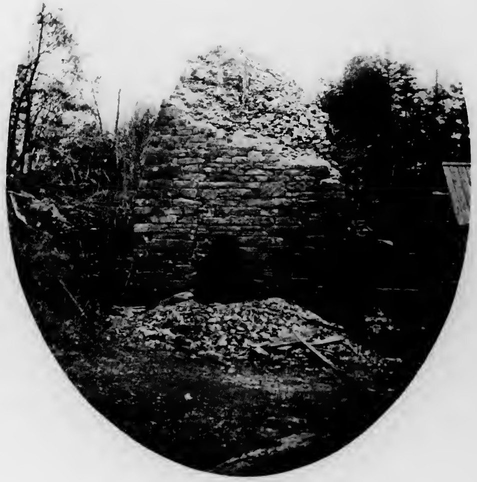

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raise his price for guns, for they said the Government would pay any price he might ask, he refused to take their advice. Orders for guns continued coming in and the end of the war found the foundry working on contracts that would keep it busy for a long time. Mr. Parrott offered to cancel these unfinished contracts if the guns were not required. The Government accepted this loyal offer and the manufacture of Parrott guns ceased.

The property history of Greenwood herein gone over shows a continuous expansion of the tract about the furnace. In 1877, when Peter P. Parrott bought out his brother and became the sole owner of Greenwood, there were between ten and eleven thousand acres held, the aggregate of thirty-three separate purchases. While these acres had been assembled in a particular business enterprise the fact that they were assembled at all was essential to their disposal in large bulk at a subsequent time and whoever may have become the possessor of them is the beneficiary of the foresight and efforts of the two men who adopted a policy of accumulation of real estate in this section way back in '37.

It took fine attributes of mind, and not alone inventive faculty, to accomplish the task that Robert P. Parrott set before himself. First, his patriotism carried him into effort to do something for his country; then his patriotism gave him resolution not to profiteer by raising his price for guns; and, again, resolution not to sell the Government guns that were not needed. If character is acquired, not inherited, as it is claimed, then these two episodes give his personality an eminence for character seldom found in the field of munition manufacture.

During the half century that has passed since the Greenwood furnace made its last blast in 1871 there have been several changes, but it is possible yet to find the old stack. The name of the place is now Arden. Out of the town of Monroe there have been erected the towns of Woodbury, Highland and Tuxedo, making four. Each one of them contains some of the 10,000 acres but the great bulk of them is in the town of Tuxedo.

— R. D. A. Parrott.

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